

Claims

1. A content transmission device that receives and converts digital broadcast data containing a multiplexed plurality of contents, and transmits the converted data, the content transmission device comprising:

a storing unit operable to store a plurality of processing models in correspondence with pieces of identity information, each processing model including composition information indicating a composition of the contents, normal-case conversion processing information for when the received broadcast data is normal, and irregular-case conversion processing information for when irregularity has been detected in the received broadcast data;

an acquisition unit operable to acquire one piece of identity information from an external device that manages a transmission schedule for the broadcast data;

a reception unit operable to receive the broadcast data;

a selection unit operable to select the processing model corresponding to the acquired piece of identity information;

a detection unit operable to detect a received broadcast data portion whose composition differs from the composition information in the selected processing model;

a conversion unit operable to carry out, based on a detection result and the selected processing model, normal-case conversion processing on a portion of the received broadcast data whose composition matches the composition information, and irregular-case processing on the portion of the received data

whose composition differs from the composition information; and
a transmission unit operable to transmit the converted
data.

5 2. The content transmission device of Claim 1,
 wherein the normal-case conversion processing is
 processing for replacing, with a different content, at least
 one of the plurality of contents indicated in the composition
 information, and
10 the irregular-case conversion processing is processing
 for replacing, with another content, a content in which
 irregularity has been detected based on the composition
 information.

15 3. The content transmission device of Claim 1,
 wherein the storing unit further stores an irregular-case
 processing model that is not in correspondence with a piece of
 identity information,

 the irregular-case processing model indicates a
20 composition of the contents that are included in data to be
 transmitted,

 the detection unit further judges whether or not the
 proportion of contents different from the composition
 information is greater than a reference level,

25 the conversion unit replaces, when the reference level
 is judged to have been exceeded, the received broadcast data
 with replacement broadcast data indicated by the irregular-case
 processing model, and

the transmission unit transmits the replacement broadcast data.

4. The content transmission device of Claim 3,
5 wherein the reception unit receives broadcast data continuously, and

when the detection unit detects that the proportion of the contents different from the composition information is less than the reference level, the conversion unit suppresses the
10 conversion of broadcast data indicated by the irregular-case processing model, and converts the broadcast data based on the selected processing model.

5. The content transmission device of Claim 1,
15 wherein the detection unit detects irregularity if (i) a content differing from the contents indicated in the composition information is received, or (ii) a portion of contents included in the contents indicated by the composition information is not received.

20
6. The content transmission device of Claim 1,
wherein the pieces of identity information are triggers generated by an APS (Automatic Programming System).

25 7. The content transmission device of Claim 1, further comprising:

an output unit operable to notify an operator of the content transmission device of the detection result from the detection

unit.

8. The content transmission device of claim 1,
wherein the broadcast data is received in packet form,
5 a packet ID is attached to each packet,
the composition information contains the packet IDs
scheduled for reception, and

the detection unit detects when the packet ID of any
received packet differs from the packet IDs in the composition
10 information.

9. The content transmission device of Claim 8,
wherein each packet includes a CRC value,
the detection unit further judges whether or not the CRC
15 value of each packet is correct, and judges a packet to be irregular
when the CRC value is judged to be incorrect, and

the conversion unit carries out irregular conversion
processing on the one or more packets that are irregular.

20 10. The content transmission device of Claim 9,
wherein each packet has a respective packet ID attached,
the composition information contains the packet IDs that
are attached to packets scheduled to be received, and

the detection unit detects, among the packet IDs of the
25 received packets, any packet IDs that differ from the packet
IDs in the composition information, and judges any packets having
the differing packet IDs to be irregular.

11. The content transmission device of Claim 1,
wherein the contents are made up of a plurality of modules,
the irregular-case conversion processing is replacement,
with another module, of a module in which irregularity has been
5 detected, and

the detection unit judges whether or not any portion of
the received modules fails to meet a judgment requirement
indicating a normal module, and when an irregular portion is
present in a module, judges the module to be irregular.

10

12. The content transmission device of Claim 11,
wherein the modules are received in packet form, and
with the judgment requirement being that the packets of
the module are complete, the detection unit detects a module
15 to be irregular when the packets are incomplete.

13. The content transmission device of Claim 11,
wherein each module includes a module length expressing
a data length of the module,

20 the judgment requirement is that the module length matches
the actual data length of the received module, and

the detection unit, when the data length of the received
module fails to match the module length, judges the module to
be irregular.

25

14. The content transmission device of Claim 1,
wherein the broadcast data is in an IP (internet protocol)
transport stream format.

15. The content transmission device of Claim 1,
wherein the broadcast data is transmitted in file format
from another device.

5

16. The content transmission device of Claim 1,
wherein the broadcast data is in MPEG-2 transport stream
format.

10

17. A content conversion method used for a content
transmission device that receives and converts digital broadcast
data containing a multiplexed plurality of contents, and
transmits the converted data, the content transmission device
including

15

a storing unit operable to store a plurality of processing
models in correspondence with pieces of identity information,
each processing model including composition information
indicating a composition of the contents, normal-case conversion
processing information for when the received broadcast data is
20 normal, and irregular-case conversion processing information
for when irregularity has been detected in the received broadcast
data, and

the content conversion method comprising steps of:

an acquisition unit acquiring one piece of identity
25 information from an external device that manages a transmission
schedule for the broadcast data;

a reception unit receiving the broadcast data;

a selection unit selecting the processing model

corresponding to the acquired piece of identity information;

a detection unit detecting a received broadcast data portion whose composition differs from the composition information in the selected processing model;

5 a conversion unit carrying out, based on a detection result and the selected processing model, normal-case conversion processing on a portion of the received broadcast data whose composition matches the composition information, and irregular-case processing on the portion of the received data
10 whose composition differs from the composition information; and
a transmission unit transmitting the converted data.

18. A content conversion program used for a content transmission device that receives and converts digital broadcast
15 data containing a multiplexed plurality of contents, and transmits the converted data, the content transmission device including

a storing unit operable to store a plurality of processing models in correspondence with pieces of identity information,
20 each processing model including composition information indicating a composition of the contents, normal-case conversion processing information for when the received broadcast data is normal, and irregular-case conversion processing information for when irregularity has been detected in the received broadcast
25 data, and

the content conversion program comprising program code operable to cause:

an acquisition unit to acquire one piece of identity

information from an external device that manages a transmission schedule for the broadcast data;

a reception unit to receive the broadcast data;

a selection unit to select the processing model
5 corresponding to the acquired piece of identity information;

a detection unit to detect a received broadcast data portion whose composition differs from the composition information in the selected processing model;

a conversion unit to carry out, based on a detection result
10 and the selected processing model, normal-case conversion processing on a portion of the received broadcast data whose composition matches the composition information, and irregular-case processing on the portion of the received data whose composition differs from the composition information; and
15 a transmission unit to transmit the converted data.

19. A computer readable recording medium on which is recorded a content conversion program used for a content transmission device that receives and converts digital broadcast
20 data containing a multiplexed plurality of contents, and transmits the converted data, the content transmission device including

a storing unit operable to store a plurality of processing models in correspondence with pieces of identity information,
25 each processing model including composition information indicating a composition of the contents, normal-case conversion processing information for when the received broadcast data is normal, and irregular-case conversion processing information

for when irregularity has been detected in the received broadcast data, and

the content conversion program comprising program code operable to cause:

- 5 an acquisition unit to acquire one piece of identity information from an external device that manages a transmission schedule for the broadcast data;
- a reception unit to receive the broadcast data;
- a selection unit to select the processing model
- 10 corresponding to the acquired piece of identity information;
- a detection unit to detect a received broadcast data portion whose composition differs from the composition information in the selected processing model;
- a conversion unit to carry out, based on a detection result
- 15 and the selected processing model, normal-case conversion processing on a portion of the received broadcast data whose composition matches the composition information, and irregular-case processing on the portion of the received data whose composition differs from the composition information; and
- 20 a transmission unit to transmit the converted data.